DISTRIBUTION OF MANGROVE SESARMID CRABS (CRUSTACEA: BRACHYURA) IN NORTHEASTERN AUSTRALIA

Sesarmid crabs have been shown to be an important component of mangrove ecosystems in tropical Australia (Robertson, 1986; Smith, 1987). Despite their dominance in mangrove forests (Jones, 1984) there is little information on the distribution of sesarmid crabs both between and within estuaries of tropical Australia. P. Davie (Queensland Museum) is working on the taxonomy of the group and is describing the new species discussed in this paper.

Materials and Sampling Sites

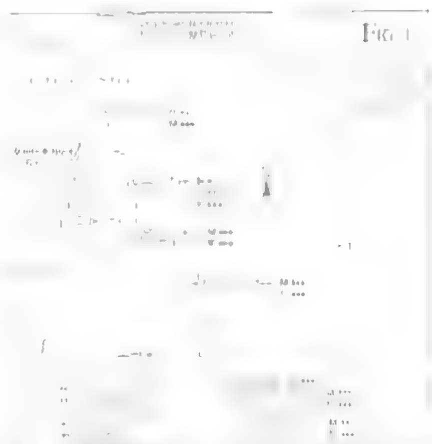
Pitfall traps were used to determine crab abundances. Within estuary sampling was undertaken at Hinchinbrook Island, Murray River and Cape Ferguson (Fig. 1). Between estuary sampling was undertaken in the Endeavour, Morgan, Claudie, Escape and Wenlock Rivers (Fig. 1). Opportunistic hand collections of crabs were also available from the Fly River.

Results

Five species accounted for over 90% of crabs captured at Hinchinbrook Island, Murray River and Cape Ferguson. At the mouth of these estuaries, in high salinity regions, *Sesarma semperi longicristatum* dominated in the low intertidal adjacent to the mudflat. This species was replaced by *S. messa* which dominated catches in the intertidal region up to the terrestrial mangrove interface where *S. fourmanoiri* dominated. In the medium and lower salinity regions of estuaries the mangrove region is reduced to normally less than 50m. As such, the dominant crab distributions showed no difference with intertidal position. *S. messa* dominated the medium salinity regions of the mangrove forests, giving way to *S. brevipes* in the low salinity regions. *S. brevicristatum* was sub-dominant in the medium and low salinity regions. The Endeavour, Morgan and Claudie Rivers had within estuary crab distributions similiar to those described above. The Wenlock River had a completely different sesarmid fauna to the northeast coast rivers. *S. darwinensis* dominated high salinity low intertidal regions and was co-dominant with *Sesarma* sp. nov. 2 in the mid- to high intertidal regions. In the low salinity regions *Sesarma* sp. nov. 1 dominated. The Escape River could only be sampled in the medium and high salinity regions. Within estuary crab distributions reflected both east coast and Wenlock River distributions. *S. semperi longicristatum* and *S. messa* distributions were similiar to the other east coast rivers and *S.* sp. nov. 2 replaced *S. fourmanoiri* as well as being co-dominant with *S. messa* in the medium salinity regions. In the Claudie River *S.* sp. nov. 2 was noticed adjacent to a large population of *S. fourmanoiri*. *S. messa* and *S.* sp. nov. 2 were both collected from the lower reaches of the Fly River. Fig. 1 shows the distributions of *S. messa*, *S. fourmanoiri* and *S.* sp. nov. 2 found in these surveys.

Discussion

Davie (1985), in trying to explain the apparent segregation of northern coast endemic species to westwards of the Torres Strait region, suggested that current flow westwards through Torres Strait could effectively prevent northern derived species from colonizing eastern Australia, but that tropical east coast fauna could be swept via larvae or adults onto northern coasts. The present study shows that Torres Strait is not a barrier for at least one typical northern species, *S.* sp. nov. 2, which is able to penetrate some distance south along eastern Cape York Peninsula and onto the coast of Papua New Guinea. The existing distribution patterns of the dominant sesarmid crab fauna associated with mangroves in NE Australia and SW PNG can only partially be explained by simple physical coastal oceanographic features. As Davie (1985) suggested, further studies are needed to elucidate larval/adult distribution patterns for these species. If the dominant sesarmid species are 'keystone species', then knowledge of the colonization factors which determine distribution is important. As the tropical littoral zones come under increasing pressure through urbanization, development and subsequent pollution, together with the predicted effects of the 'greenhouse phenomena', a correct understanding will be imperative when the biological components of these littoral ecosystems are forced to adapt and alter distribution patterns.



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